

**We claim:**

1. A method of electrochemically preparing a crystalline, porous, metal-organic framework material comprising at least one at least bidentate organic compound coordinately bound to at least one metal ion, in a reaction medium comprising the at least one at least bidentate organic compound, wherein at least one metal ion is provided in the reaction medium by the oxidation of at least one anode comprising the corresponding metal.
2. The method according to claim 1, wherein the cathodic redeposition of the at least one metal ion is at least partially prevented by at least one of the following measures:
  - (i) the use of an electrolyte which promotes the cathodic formation of hydrogen;
  - (ii) the addition of at least one compound leading to cathodic depolarization;
  - (iii) the use of a cathode having a suitable hydrogen overpotential.
3. The method according to claim 2 wherein the electrolyte according to (i) comprises at least one protic solvent.
4. The method according to claim 2, wherein the cathodic depolarization is a hydrodimerization.
5. The method according to any one of claims 1 to 4 which is implemented in an undivided electrolytic cell.
6. The method according to any one of claims 1 to 5 which is implemented in a gap cell or plate stack cell.
7. The method according to claim 6, wherein the gap cell or plate stack cell is connected for bipolar operation.
8. The method according to any one of claims 1 to 7, wherein the reaction medium comprises methanol, ethanol, dimethylformamide, diethylformamide or a mixture of two or more of these.

9. The method according to any one of claims 1 to 8, wherein the metal ion source used is a copper- and/or an iron- and/or a zinc-comprising anode.
- 5 10. The method according to any one of claims 1 to 9, wherein the at least bidentate organic compound used is an aromatic di, tri- and/or tetracarboxylic acid.
- 10 11. The method according to any one of claims 1 to 10, wherein the reaction medium comprises at least one conducting salt.
12. The method according to claim 11, wherein the at least one conducting salt comprises as the cation component a quaternary ammonium ion and as the anion component comprises an alkoxy sulfate.
- 15 13. The method according to any one of claims 1 to 12, wherein the solids content is in the range of greater than or equal to 0.5 wt%.
- 20 14. A crystalline, porous, metal-organic framework material which can be obtained via the method according to any one of claims 1 to 13.
- 25 15. The framework material according to claim 14 which has a specific surface area, determined in accordance with DIN 66135, of greater than or equal to 5 m<sup>2</sup>/g.
- 30 16. The use of the crystalline, porous, metal-organic framework material according to either one of claims 14 or 15, or of a crystalline, porous, metal-organic framework material which can be obtained via the method according to any one of claims 1 to 13 as a storage medium for at least one liquid and/or at least one gas.
- 35 17. The use of the crystalline, porous, metal-organic framework material according to either one of claims 14 or 15, or of a crystalline, porous, metal-organic framework material which can be obtained via the method according to any one of claims 1 to 13 as a catalyst, pigment, sensor, electrical conductor or ion conductor.